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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/826,062

Applicant(s)

CASTILLO ET AL.

Examiner

SAMUEL NEWAY

Art Unit

2626

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 21-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 21-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This is responsive to the RCE filed on 23 June 2010.
2. Claims 1-12 and 21-32 remain pending and are considered below.

Response to Amendment

3. The rejections of claims 1-4 and 7-11 under 35 U.S.C. § 101 are withdrawn in view of Applicant's amendments.
4. The rejections of claims 1-12 and 21-31 under 35 U.S.C. § 112 are withdrawn in view of Applicant's amendments.

Response to Arguments

5. Applicant's arguments filed 23 June 2010 have been fully considered but they are not persuasive.

Applicant argues that Devine does not disclose a higher level representation different from XML. However, Devine discloses ("any suitable intermediate language including XML, UML, Adobe Postscript, proprietary Visio file format or any other suitable intermediate language., may be used", [0044]).

Applicant also argues that the combination of Devine, Mital, and Karr would not be workable because blending a language like Matlab with an XML intermediate representation would involve different syntax.

First, it is noted that the intermediate representation does not have to be an XML representation. Specifically, Devine teaches that "it will be apparent to those of ordinary skill in the art that the systems and methods described herein are not necessarily limited to any particular intermediate language and any suitable intermediate language including XML, UML, Adobe Postscript, proprietary Visio file format or any other suitable intermediate language., may be used with the systems and methods described herein" ([0044]).

Second, Devine discloses that XML could be used to generate C-Code ([0027]), which involves blending different syntax, and that the intermediate language could be used to generate "any suitable high level programming language including C, C++, Java, Fortran, Pascal, or any other suitable language" ([0045]).

Therefore, it would have been obvious to one with ordinary skill in the art to have used a suitable intermediate language to generate a Matlab program.

Applicant further argues that Sinai and Mital, references under 35 U.S.C 102(e), may not be used in a 35 U.S.C 103 rejection because they were published after Applicant's application date. However, the Supreme Court has authorized 35 U.S.C. 103 rejections based on 35 U.S.C. 102(e). U.S. patents may be used as of their filing dates to show that the claimed subject matter is anticipated or obvious. Obviousness can be shown by combining other prior art with the U.S. patent reference in a 35 U.S.C.

103 rejection. *Hazeltine Research v. Brenner*, 382 U.S. 252, 147 USPQ 429 (1965) (See MPEP § 2136.02(III)).

Applicant also argues that Devine does not teach a higher level representation having a syntax used to specify grammars of a programming language. This newly presented limitation is disclosed by Mital as shown below.

Claim Objections

6. Claims 6, 9, 21, 26, and 29 are objected to because of the following informalities:

Claims 6 and 9 recite the limitation "the BNF" in line 1. There is insufficient antecedent basis for this limitation in the claims. It is believed claim 4, upon which both claims 6 and 9 depend, should depend on claim 3 in order to provide sufficient antecedent basis for the limitation.

Claim 21 recites "an EXM format" in line 7. It is believed this is a typographical error and the limitation will be read as 'an XML format'.

Claims 26 and 29 recite the limitation "the BNF" in line 1. There is insufficient antecedent basis for this limitation in the claims. It is believed claim 24, upon which both claims 26 and 29 depend, should depend on claim 23 in order to provide sufficient antecedent basis for the limitation.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3, 5, 7, 8, 11, 12, 21-23, 25, 27, 28, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devine et al (US PGPub 2003/0217190), in view of Mital et al (USPN 7,184,967), in view of Karr et al (US PGPub 2003/0066051), and in further view of Sinai et al (USPN 7,143,042).

Claim 1:

Devine discloses a method of converting a call flow into a state-based representation (Abstract), the method causing a computing device to perform steps comprising:

walking a call flow and converting each page of the call flow into a rule of a higher level representation of the call flow ("The drawing package allows for the created flow charts to be saved in an intermediate language format", [0007]), wherein the higher level representation differs from an XML format, ("any suitable intermediate language including XML, UML, Adobe Postscript, proprietary Visio file format or any other suitable intermediate language., may be used", [0044]);

augmenting, via a processor (inherent in the system described in [0026] and [0027]), the higher level representation with terminal symbols representing state variable assignments and comparisons associated with decision and computation shapes in the call flow to yield an augmented higher level representation ("set of

instructions in an intermediate language capable of representing the content and structure of the flow chart diagram", [0012]); and converting, via the processor (inherent in the system described in [0026] and [0027]), the higher level representation into a state-based representation ("parsing the intermediate language to generate a state event table having a set of computer executable instructions", [0012]).

Devine does not explicitly disclose the higher level representation having a syntax used to specify grammars of a programming language and wherein a name of at least one state transition in the augmented higher level representation includes a suffix associated with a special meaning.

In a similar method, Mital discloses converting a flow chart (Fig. 22) into an augmented higher level representation (Fig. 23), the augmented higher level representation having a syntax used to specify grammars of a programming language ("programming language syntax defined in Extended Backus-Naur Form (EBNF)", col. 17, lines 15-17) and wherein the augmented higher level representation includes a name of at least one state transition in the higher level representation includes a suffix associated with a special meaning (Figs. 22 and 23, note that the state WTG-1 in Fig. 22 is named $(WTG_1, source(p_1, m_1))$ in Fig. 23. Also note that $source(p_1, m_1)$ is a suffix associated with a special meaning).

It would have been obvious to one with ordinary skill in the art at the time of the invention to represent Devine's higher level representation using Mital's Backus-Naur

Form because Backus-Naur Form is an old and well known notation technique for context-free grammars used to describe language syntax.

Devine and Mital do not explicitly disclose that the state variables are dynamically typed.

Karr discloses dynamic variables used in dynamically typed languages such as Matlab ([0017] and [0018]).

It would have been obvious to one with ordinary skill in the art to have used a dynamically typed language such as Matlab to convert Devine's call flow into source code to yield the predictable result of dynamically typed variables. Note also that Devine discloses any "suitable language" (which could be Matlab) may be used to represent the source code ([0045]).

Devine, Mital, and Karr do not explicitly disclose that the flow chart is for a spoken dialog service.

Sinai discloses a similar call flow design tool where the generated flow is from a spoken dialog service ("The function of the dialog runtime unit 42 is to enable the developer to execute a dialog being assembled using the dialog flow editor 41", col. 8, lines 40-43).

It would have been obvious to one with ordinary skill in the art at the time of the invention to use Devine's flow charts for Sinai's spoken dialog service, or any other process that can be represented by a flow chart, because, as Devine states, "the systems and methods described herein may be employed in many

applications besides telephony services, including gaming, video-conferencing, billing, and other applications" ([0067]).

Claim 2:

Devine, Mital, Karr, and Sinai disclose the method of claim 1, Mital further discloses wherein the higher level representation is a context-free grammar representation ("Backus-Naur Form", col. 17, lines 15-17).

It would have been obvious to one with ordinary skill in the art at the time of the invention to define the higher level representation in Devine's method in a context-free grammar as disclosed in Mital because context-free grammar is a widely used format for specifying the syntax of a language.

Claim 3:

Devine, Mital, Karr, and Sinai disclose the method of claim 1, Mital further discloses wherein the higher level representation is a Backus-Naur Form (BNF) (col. 17, lines 15-17).

It would have been obvious to one with ordinary skill in the art at the time of the invention to define the higher level representation in Devine's method in a Backus-Naur Form as disclosed in Mital because Backus-Naur Form is a widely used format for specifying the syntax of a language.

Claim 5:

Devine, Mital, Karr, and Sinai disclose the method of claim 3, Devine further discloses wherein the step of walking the call flow and converting each page to a BNF occurs automatically via a computing device ("the editor is the Microsoft

Visio editor which allows for a created flowchart to be saved in XML format", [0007]).

Claim 7:

Devine, Mital, Karr, and Sinai disclose the method of claim 1, Devine further discloses wherein the call flow comprises at least one page having a set of shapes having specific meanings (Fig. 4 and related text).

Claim 8:

Devine, Mital, Karr, and Sinai disclose the method of claim 7, Devine further discloses wherein the set of shapes having special meaning comprises at least: parallelograms representing rules, lines representing dialog inputs, rectangular boxes representing dialog outputs or actions, diamonds representing Boolean decision functions, hexagrams representing calculation and assignment functions and annotation shapes representation comments (Fig. 4 and related text).

Claim 11:

Devine, Mital, Karr, and Sinai disclose the method of claim 1, Devine further discloses wherein the rule comprises terminal symbols comprising the names used to label shapes and transitions of the call flow ("The translator can process these shapes and connectors to develop a set of instructions", [0027]).

Claim 12:

Devine, Mital, Karr, and Sinai disclose the method of claim 1, Devine further discloses generating a unique terminal symbol in the higher level representation that

shadows each rule, input, output, decision and calculation within the call flow ("The translator can process these shapes and connectors to develop a set of instructions ... that represent the service presented in the drawing.", [0027]).

Claims 21-23, 25, 27, 28, 31, and 32:

Devine discloses a system comprising a processor (inherent in the system described in [0026] and [0027]) and modules (translator, parser, [0026], [0027]) for controlling the processor to perform the steps of method claims 1, 2, 3, 5, 7, 8, 11, and 12 as presented above.

9. Claims 4, 6, 9, 10, 24, 26, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devine et al (US PGPub 2003/0217190), in view of Mital et al (USPN 7,184,967), in view of Karr et al (US PGPub 2003/0066051), in view of Sinai et al (USPN 7,143,042), and in further view of Wallace (USPN 4,686,623).

Claim 4:

Devine, Mital, Karr, and Sinai disclose the method of claim 3, but they do not explicitly disclose wherein the state-based representation is a finite state machine (FSM).

It is old and well known in the computing arts to input context-free grammar into a grammar parser and generate a finite state machine as evidenced by Wallace which discloses expressing source code in a context-free grammar which is provided to a grammar parser which in turn generates a finite state machine (col. 2, lines 38-44).

Thus, it would have been obvious to one with ordinary skill in the art at the time of the invention to have the state based representation of Devine's method be finite state machines because they are known and old standards in compiling source code.

Claim 6:

Devine, Karr, Sinai, Mital and Wallace disclose the method of claim 4, Devine further discloses wherein the step of augmenting the BNF with terminal symbols occurs automatically via a computing device ("the editor is the Microsoft Visio editor which allows for a created flowchart to be saved an XML format", [0007]).

Claim 9:

Devine, Mital, Karr, Sinai and Wallace disclose the method of claim 4, Wallace further discloses wherein a grammar compiler is used to convert the BNF into the FSM (col. 2, lines 38-44).

It would have been obvious to one with ordinary skill in the art at the time of the invention to use a grammar compiler to convert BNF into FSM because it is an old and known standard in compiling source code.

Claim 10:

Devine, Mital, Karr, Sinai and Wallace disclose the method of claim 9, Sinai further discloses wherein the FSM may be used by at least one spoken dialog tool to perform generation and testing functions associated with a spoken dialog service ("The function of the dialog runtime unit 42 is to enable the developer to execute a dialog being assembled using the dialog

flow editor 41, such as for testing and debugging purposes", col. 8, lines 40-43).

Claims 24, 26, 29, and 30:

Devine discloses a system comprising a processor (inherent in the system described in [0026] and [0027]) and modules (translator, parser, [0026], [0027]) for controlling the processor to perform the steps of method claims 4, 6, 9, and 10 as presented above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAMUEL NEWAY whose telephone number is (571)270-1058. The examiner can normally be reached on Monday-Friday 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571)272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SAMUEL NEWAY/
Examiner, Art Unit 2626